

## **Network Terminal User's Manual**

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# Introduction

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This section introduces you to the Network Terminal, including its capabilities and features.

The end of this section describes this manual's structure and intended audience.

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## **Overview of the Network Terminal**

The Network Terminal (NT) is a simple, lightweight, portable operator interface to Metasys®. A standard telephone jack connects the NT to any Network Control Module (NCM) on Metasys. This direct connection allows for easy access to any system functions available for your password level.

You can also connect the NT to the NCM from remote locations (up to one mile) on a separate NT trunk.

The NT provides some of the functions available from the standard Operator Workstation in one neat, easy-to-use package. In fact, using the NT is as simple as making a phone call! All you do is:

1. Establish the connection--*plug the NT in to any NCM or Remote NT Jack.*
2. Introduce yourself--*log on and enter your password.*
3. Talk to Metasys--*enter data and select options.*
4. Listen to Metasys--*follow screen instructions, view summaries.*
5. End your conversation--*log off.*

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## **Capabilities**

With the NT, you can:

- request Alarm, Override, History, Limit, and Status Summaries
- override an object to bypass automatic start, stop, or reset operations
- manually command binary objects, access objects, and multistate objects within CS objects
- change alarm and warning limits
- adjust a setpoint
- override or adjust a setpoint, binary, or multistate attribute within a CS object
- change the system clock, date, and daylight saving set date
- add or modify weekly, holiday, and one-time schedules, and schedule times for objects to be adjusted or commanded

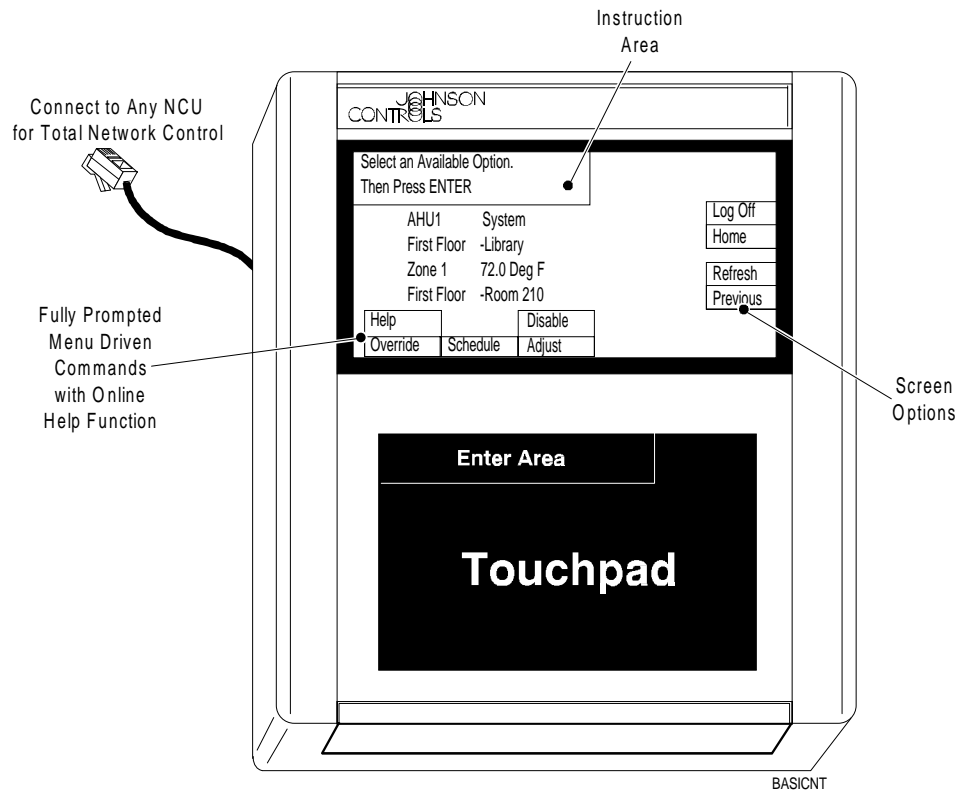
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## **Features**

The NT includes:

- a touch-sensitive, sealed membrane Touchpad. The screen cursor moves as you drag your finger across the Touchpad
- a liquid crystal, 256 x 128 dot matrix display, that shows up to 16 lines of 40 characters each
- an online Help function

To familiarize yourself with the NT, refer to the next page.



**Figure 1: Basic NT Screen Format**

## Display Screen

The Display Screen consists of an Instruction Area, a Summary Area, Screen Options, and Commands.

The *Instruction Area* on the upper left corner of the display screen guides you step-by-step through each procedure. As you select the Screen Options, the message in this area tells you exactly what to do next.

The format of the display in the *Summary Area* varies according to the options you select. For instance, some options display only system or object IDs in the Summary Area, while others display expanded IDs and status information. The *Getting Started* section describes the various formats in greater detail.

The *Screen Options*, which appear on the right of the screen, give you access to the screen display functions. For instance, when the first screen (System IDs) displays, selecting the ALARM option will show a list of all the systems that have objects in an alarm state.

A Screen Option only appears when it is valid. Each option occupies the same location each time it appears. When it is not a valid option, that same location may be occupied by another option.

The *Commands* at the bottom of the screen allow you to control Metasys operations. See the *Getting Started* section of this document for a complete list of Commands. A Command is only selectable when it appears with a box around it.

## Touchpad

The *Touchpad* is the area below the display screen. To select an option or command, just press the area on the Touchpad that corresponds to the Screen Option or Command location on the display screen.

The ENTER Area occupies the same area on the Touchpad as the Instruction Area does on the Display Screen.

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**About This  
Manual**

This manual assumes that you are familiar with Metasys terms, hardware, and data structure, as well as the particular system and object IDs used for your facility. Refer to *Appendix B* for a brief summary of this information. If you are not familiar with the information in *Appendix B*, refer to the *Metasys Network Technical Manual*.

**Manual Structure**

*Getting Started* explains how to use the NT to communicate with Metasys, including: connecting the NT, using the Touchpad, logging on, selecting options, and entering data.

*Requesting Information* explains how to request Alarm, Override, History, Limit, Hold, and Status Summaries.

*Override Control* explains how to override binary and analog objects and how to enable or disable an object.

*Commanding Objects* explains how to command binary objects, access objects, and multistate objects within CS objects.

*Changing Alarm and Warning Limits* explains how to set new alarm limits, and new warning limits.

*Adjusting Objects* explains how to change the value of an Analog Data object, and how to adjust an Analog Output setpoint.

*Setting the Clock* explains how to set the system time and date, adjust daylights savings times, and specify Holiday, Alternate, and Regular periods.

*Changing Schedules* explains how to add or modify weekly, holiday, and one-time schedules, and how to schedule times to adjust or command an object, or change a setpoint.

*Using the Network Terminal Emulator* explains the Network Terminal Emulator Software, and how to perform Network Terminal functions using it.

*Appendix A--Glossary* is a list of Metasys terms and definitions.

*Appendix B--Metasys Overview* is a graphical representation of the Metasys hardware structure.

**For More  
Information**

You can find more information on the NT, the Remote NT, and Metasys in the following:

- *Metasys Network Technical Manual*
- *Operator Workstation User's Manual*
- *GPL Programmer's Manual*
- *JC-BASIC Programmer's Manual*

**Another Resource**

For an interactive learning experience using the NT, refer to the Computer Based Training package for the NT called *Using the Network Terminal*.



# Getting Started

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This section explains how to use the NT to communicate with Metasys.

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## ***Communicating with Metasys***

Communication includes:

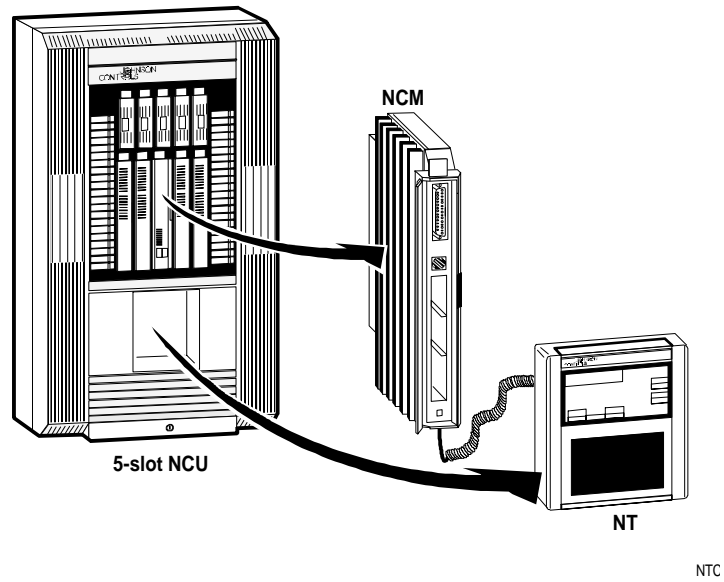
- establishing a connection--*plugging the NT to any NCM or Remote NT Jack*
- talking to Metasys--*entering data and selecting options*  
introducing yourself to Metasys--*logging on and entering your password*
- listening to Metasys--*understanding screen displays and summaries*

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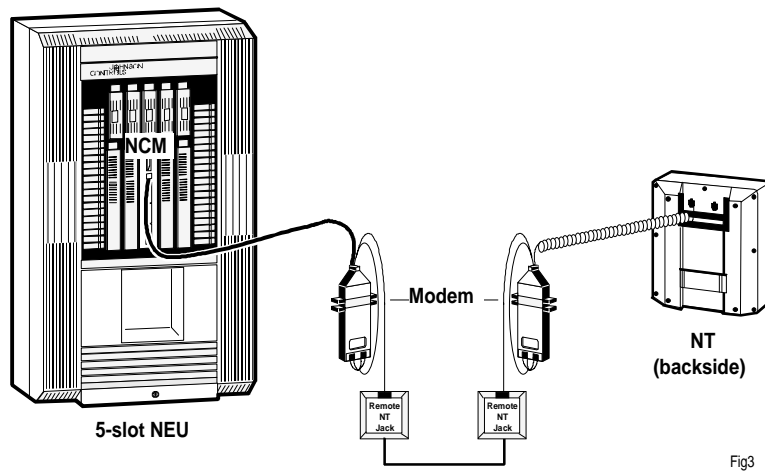
## ***Establishing a Connection***

To establish a connection with Metasys, just plug the NT connector directly into the modular phone jack of any NCM. Simply open the door on the back of the NCM, and plug the connector in. (See the illustration on the following page.) The NT cable extends up to 4 1/2 feet away from the NCM. While you're using the NT, you can either hold it in your hand or leave it hooked to the mounting bracket on the NCU. Mounting brackets are available on 2-slot and 5-slot NCUs.

You can also communicate with the NCM by plugging the NT into a Remote Network Terminal Jack. The NT can function remotely up to one mile (1.6 km) away from the NCM over a separate NT trunk. For more information on the Remote NT, see the *Operator Devices* section of your *Metasys Network Technical Manual*.



**Figure 2: Network Terminal Connection**



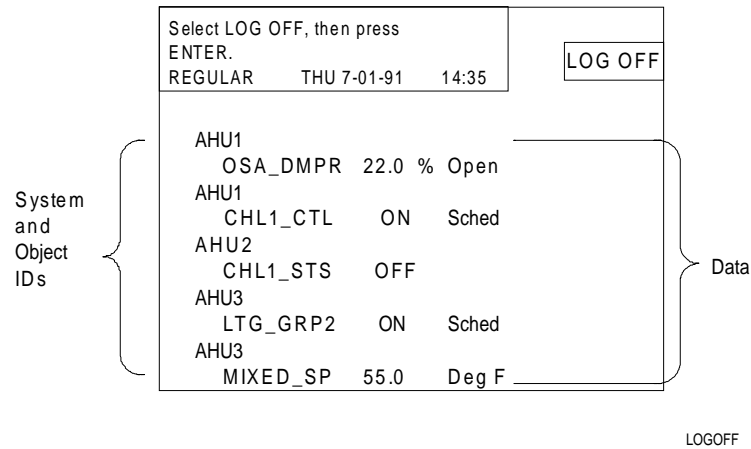
**Figure 3: Remote Network Terminal Connection**

When first connected to the NCM, the NT briefly displays a copyright screen. Then it displays the Log Off screen showing the current period (Alternate, Regular, or Holiday), the day, date, and time. The only option available on the Log Off screen is LOG ON.

When no one is logged on to the NT, the Log Off screen may display a Hold Summary of up to six HOLD objects per NCM with current data and status. The screen summary refreshes every 20 seconds. You cannot select the objects on this screen. Refer to *Requesting Information* for details on assigning objects to the Hold Summary.

The figure below is a typical Log Off screen. The object summaries displayed on this screen vary according to your system.

*The System and Object IDs will appear on the left side of the screen.  
Data will be to the right.*



**Figure 4: Log Off Screen**

### ***Talking to Metasys***

Talking to Metasys means entering information and selecting options.

### **Entering Information**

The Instruction Area at the top of each display screen reminds you how to enter information.

The procedure for entering information is:

1. Drag your finger across the Touchpad until the cursor points to and highlights the character you want to enter.
2. Press the Touchpad at that point to select the character, then press ENTER. If you are entering a password, the characters you select appear on the screen as asterisks (\*).
3. Repeat this process until you've selected and entered all the characters, then select EXECUTE (or CONTINUE, depending on the screen displayed).
4. Press ENTER to let the system know your entry is complete.

### **Correcting a Mistake**

If you make a mistake, select ERASE, then press ENTER to delete the last character.

### **Penetrating Metasys**

To perform most procedures, you'll have to penetrate the Metasys Network to select a system and/or object. Each layer of penetration displays a new screen with Screen Options and Commands applicable to that screen.

### **Selecting Screen Options and Commands**

The Screen Options are selectable only when they are valid options for the particular procedure you are performing.

You'll use the Screen Options to display Alarm or Override summaries, access a system or object, and sequence through procedures.

The table on the next page lists the Screen Options, the screens on which they may appear, and the function of each option.

To select an option:

1. Drag your finger across the Touchpad to move the cursor to that option.
2. When the option highlights, press the area on the Touchpad that corresponds to the location of the option.

Screen Option	Displayed On	Function
<b>ALARM</b>	System ID (HOME) screen	Displays system IDs that have one or more objects in alarm (Alarm Summary).
<b>CLOCK</b>	System ID (HOME) screen	Accesses the system clock to set the time, date, daylight saving times, and Holiday, Alternate, or Regular periods.
<b>CONTINUE</b>	Any screen that requires a string of data	Proceeds to the next screen in the sequence of procedure.
<b>DELETE</b>	Weekly, one-time, and period schedule screens	Removes scheduled programs from the system.
<b>ENTER</b>	Upper left corner of the Touchpad	Tells Metasys to act on the selection you've made.
<b>ERASE</b>	Any screen that requires a string of data	Erases the last character.
<b>EXECUTE</b>	Any screen that requires a string of data or at the end of a modify or add sequence. After a password, time or date, or setpoint values are keyed in.	When followed by the ENTER Area, EXECUTE allows entered data to be written to the NCM. The next screen displayed after EXECUTE may not instantly reflect the entered data. If not, select REFRESH to update the screen.
<b>HOME</b>	Most screens, except Log Off and System ID	Stops the current penetration. Redisplays the System ID screen.
<b>LOG OFF</b>	All screens, except Log Off, Error, and Help screens	Exits the system and clears the screen. You must log on to use the NT again.
<b>LOG ON</b>	Log Off screen	Displays the Log On screen. You must enter your password to gain access to any NT functions.
<b>OVERRIDE</b>	System ID screen	Displays only those System IDs that have one or more objects that are overridden (Override Summary).
<b>PAGEDOWN</b>	Any screen that has more than one screen full of data. Not displayed on last page.	Displays the next screen full of data.
<b>PAGEUP</b>	Any screen that has more than one screen full of data. Not displayed on first page.	Displays the previous screen full of data.
<b>PREVIOUS</b>	Most screens except Log Off, Log On, and System ID	Automatically shows the previous layer of penetration. If object IDs are displayed when you select PREVIOUS, the system ID screen re-displays.
<b>REFRESH</b>	Object Command screen	Refreshes the screen with any dynamic data.

**Table 1: Network Terminal Screen Options**

## **Commands**

Commands are available only when they are *boxed*. If an object is offline or disabled, commands may appear but not be selectable. For example, if a BO object is offline, the START or STOP commands may appear on the screen *unboxed*, therefore *unselectable*.

The Commands vary from screen to screen. Most Commands are self-explanatory. The following table lists those Commands that are available for an entire system, and for a system's Hardware Objects and Software Objects. There are two pairs of toggle Commands (that is, only one command of the pair is available at any time): HOLD/CLEAR and DISABLE/ENABLE.

The Command information in the following table is also available through the NT's online HELP feature.

Command	System	Hardware Objects												
		XM	LC	DCM	DCM 140	DSC 1000	DSC 8500	FPU	Fire	DX- 9100	VND	MIG	AC	PHX
<u>Adjust</u>														
<u>Alarm (summary)</u>	X													
<u>Auto</u>														
<u>Override</u>														
<u>Hold/Clear</u>		X	X	X	X	X	X	X	X	X	X	X	X	X
<u>Clock</u>	X													
<u>Command</u>														
<u>Disable/Enable</u>		X	X	X	X	X	X	X	X	X	X	X	X	X
<u>Help</u>		X	X	X	X	X	X	X	X	X	X	X	X	X
<u>History</u>														
<u>Limits</u>														
<u>Override (summary)</u>	X													
<u>Schedule</u>														
<u>Unlatch</u>														
<u>Reset</u>													X	
<u>Access</u>													X	
<u>Normal</u>													X	

Table 2: Network Terminal Hardware Object Commands

Command	System	Software Objects													
		ACM	AI	BI	BO	BD	AOS	AOD	AD	LCG	PIDL	L2	CS	ZONE	CR
Adjust							x		x		x	x	x		
Alarm (summary)	x														
Auto					x	x	x	x	x	x	x	x	x		
Override					x	x	x	x	x	x	x	x	x		
Hold\Clear		x	x	x	x	x	x	x	x	x	x	x	x	x	x
Clock	x														
Command					x	x							x		
Disable\ Enable		x	x	x	x	x	x	x	x	x	x	x	x	x	x
Help		x	x	x	x	x	x	x	x	x	x	x	x		x
History		x	x	x	x	x	x	x	x						
Limits		x	x						x						
Override (summary)	x														
Schedule		x	x		x	x	x		x	x	x	x	x		
Unlatch				x											
Open															x
Secure															x
Access															x

**Table 3: Network Terminal Software Object Commands**



<b>Command</b>	<b>Select To</b>
<b>ADJUST</b>	Change the value of an object.
<b>COMMAND</b>	Manually change the state of an object. All priority 4-7 programs will be released before the command is issued. Command will be issued at lowest priority (8).
<b>DISABLE/ ENABLE</b>	Lock out reporting, process triggering, and output control for this object. This is usually used when there are problems with the field equipment. Once the equipment is repaired, select ENABLE to resume these functions.
<b>HISTORY</b>	See what has happened to this object over a period of time. For analog objects, 48 samples are stored. Ten COSs are stored for binary objects. The History Summary contains samples, alarm data, date, and time.
<b>LIMITS</b>	See, modify, or add alarm or warning limits for an object. The differential value will be the same for both warnings and alarm limits. Changing one changes the other. The high and low warning limits are calculated using the setpoint and normalband.
<b>AUTO</b>	Control the condition of the object through the application feature. Select OVERRIDE to release the automatic mode and manually control the object.
<b>OVERRIDE</b>	Control the condition of an object until the AUTO command is selected. ADs, AOSs, and AODs can be overridden to a selected value. BDs and BOs can be overridden to a selected state. Release the override status by selecting the AUTO selection and return the control of the object to the application feature.
<b>SCHEDULE</b>	See, modify, or build schedules for an object. HOLIDAY, REGULAR, ALTERNATE, and ONE-TIME schedules are available for an object. Dates for HOL, REG, and ALT modes are set using the CLOCK feature. ONE-TIME schedules are deleted after the schedule runs.
<b>LIGHTING CONTROLLER SCHEDULE</b>	See, modify, or build up to four schedules for a lighting group. NORMAL and HOLIDAY periods are available. The NORMAL schedules will run when the FMS is in the REGULAR or ALTERNATE mode. ONE-TIME schedules are not allowed for the lighting group.
Continued on next page . . .	

**Table 4a: Network Terminal Commands**

<b>Command (Cont.)</b>	<b>Select To</b>
<b>*</b> <b>(status)</b>	See the current condition of an object (for instance, alarm or override condition). Displays up to eight conditions for an object at a time, arranged in order of importance.
<b>UNLATCH</b>	Release the LATCHED status of an object. Latched objects are used in critical situations to prevent the status of an object from returning to normal automatically. UNLATCH returns the status to normal only if the alarm condition has cleared. Available only when the BI object is latchable and is currently latched.
<b>HOLD/CLEAR</b>	Dynamically display an object and its status at a regular interval while you are logged off. Only six objects can be assigned to the Hold Summary. Hold objects are not selectable on the Hold Summary. Remove the object from the Hold Summary. When all objects are removed from the Hold summary, it will be blank.
<b>RESET</b>	Silence any AC alarm horns that may be sounding due to alarm conditions.
<b>NORMAL</b>	Return all doors controlled by the AC to the their normal state according to the current date, time, and controlling feature.
<b>OPEN</b>	Unlock a door to allow entry without the use of an access card. The door remains in the Open state until the defined access time has elapsed. An alarm occurs if the door is held open after the defined shunt time has elapsed (usually within a minute).
<b>SECURE</b>	Lock a door allowing entry only with the use of a valid access card. This command remains in effect until it is manually commanded to Open, or it is overridden by an application feature.
<b>ACCESS</b>	Unlock a door allowing access without the use of an access card. Access remains in effect until the door is manually commanded to the Secure state, or it is overridden by an application feature.

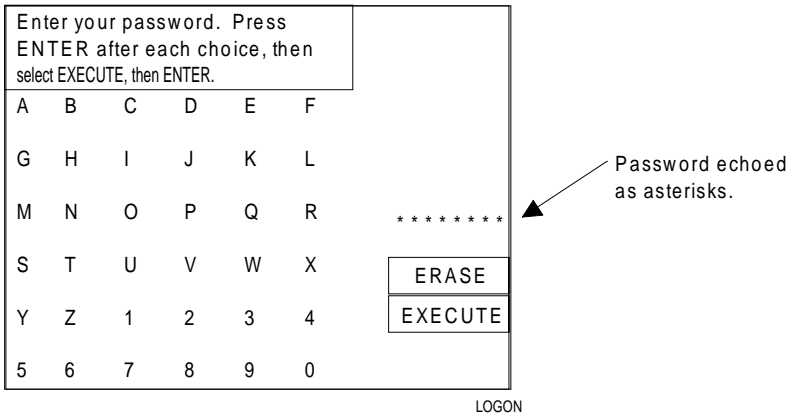
**Table 4b: Network Terminal Commands**

**Introducing  
Yourself to  
Metasys**

**Logging On**

This is where you begin your conversation with Metasys. To introduce yourself, you simply log on and enter your password.

- 1. On the initial screen, select the LOG ON option, then press ENTER. Remember, the ENTER Area is the area at the top of the Touchpad that corresponds to the Instruction Area on the display screen. The Log On screen appears.



**Figure 5: Log On Screen**

- 2. Select the characters in your password, one at a time, pressing ENTER after each selection. Your password appears as a line of asterisks above the ERASE option. When you’ve entered your entire password, select EXECUTE, then ENTER.

**Correcting  
Your  
Password**

If you incorrectly entered your password, the NT displays PASSWORD ERROR. Select PREVIOUS, then press ENTER to re-enter your password, or select ERASE to erase the last character entered.

---

## Listening to Metasys

### System ID Screen

Metasys talks to you by displaying the information you request.

After you log on, the System ID screen appears. It lists all the systems accessible to your password. From this screen, you can:

- either select the LOG OFF, CLOCK, OVERRIDE, or ALARM options
- or select a system, then press ENTER to display that system's objects

For a summary, select ALARM or OVERRIDE. For data, select a system name, then press ENTER.		LOG OFF
		CLOCK
		ALARM
		OVERRIDE
System IDs {	AHU1	AHU2
	BASEMENT	1STFLOOR
	AHU3	AHU4
	AHU5	2NDFLOOR
	DIVERSE	AHU5
		PAGEDOWN
		Page 1
		SYSTEMID

**Figure 6: System ID Screen**

The CLOCK Screen Option allows you to set the system date and time, adjust daylight saving times, and specify Holiday, Alternate, and Regular periods. See *Setting the Clock* for more information on this option.

The ALARM and OVERRIDE Screen Options display summaries of any system IDs that have objects in ALARM or OVERRIDE. Just select a system, select ALARM or OVERRIDE, then press ENTER. See *Requesting Information* for details on summaries.

To see the Object ID screen displaying *all* the objects in a system, simply select that System ID and press ENTER.

**Object ID Screen**

The Object ID screen lists all the objects in the selected system. From this screen, you can perform the following procedures:

- Quit the current session by selecting LOG OFF.
- Return to the System ID screen by selecting HOME.
- Update the data on the screen display by selecting REFRESH. The screen won't automatically update while you're logged on.
- Return to the previous screen by selecting PREVIOUS.
- View the next or last screen full of Object IDs by selecting PAGEUP or PAGEDOWN.

When you select an object, the commands valid for your password show in the Command area at the bottom of the display screen.



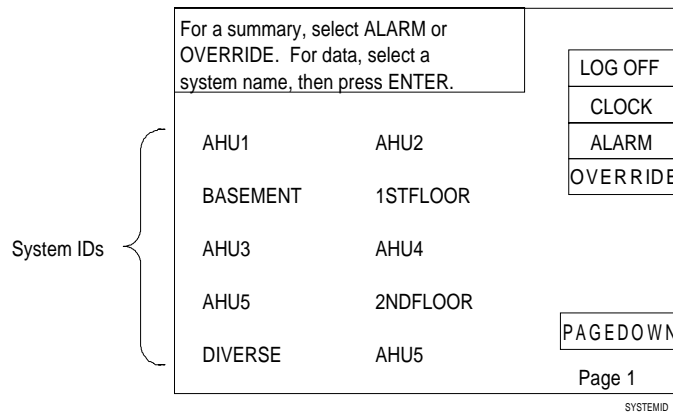
## Requesting Information

This section explains how to request Alarm, Override, Status, Limit, History Information, and Hold Summaries and the HELP command.

The Alarm and Override Summaries options are available on the System ID screen. Status, Limit, and History Summaries are available when you select an object.

### **Alarm and Override Summaries**

To display a summary of all systems that have objects in alarm or override, select the ALARM or OVERRIDE Screen Option from the System ID screen.



**Figure 7: System ID Screen**

To see which objects are in alarm or override, select a system from the Alarm or Override Summary screen, then press ENTER. If the data is not readily available from the NCM, the screen displays COLLECTING DATA, PLEASE WAIT . . .

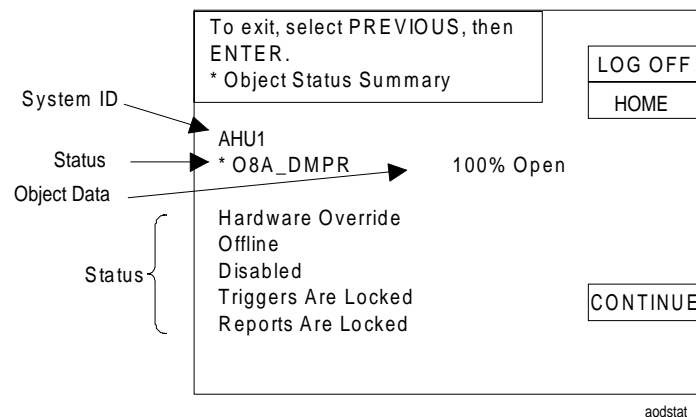
You can select an object displayed on the summary screen, then select any available Screen Option or Command.

---

## Status Summaries

A Status Summary shows the current condition of an object (for instance, alarm or override condition). The STATUS command displays up to eight conditions for an object at a time. The conditions are listed in order of importance.

To display a Status Summary, select a system, an object, then the STATUS command, shown as an asterisk (\*) in the Command area.



**Figure 8: AOD Status Summary Screen**



The data displayed in a summary depends on the current condition of the object.

If the Display Shows	The Data Is
?	Not available from the NCM.
???????	Available from the NCM but is unreliable.
Valid Data	Valid and reliable.
*****	Reliable but too long to fit in the field.

**Table 5: Data Displays**

---

### ***Limit Summaries***

A Warning Limit Summary lists the limits, setpoints, normalband, warning delay, and differential of an object. An Alarm Limit Summary shows the high and low alarm limits, and the differential.

To display a Limit Summary, select a system, an object, then the LIMITS command.

From the Limit Summary screen, you can select any available Screen Option or Command.

---

## History Information Summaries

A History Information Summary shows what happened to an object over a period of time. It displays the most recent values or states, alarm information, dates, and times.

To display a History Information Summary, select a system, an object, then the HISTORY command.

To exit, select PREVIOUS, then ENTER. History Information Summary				LOG OFF
				HOME
AHU1 * MA_DMPH      37.25 Open				
Feature	Sample	Time	Date	
Process	0.0	13:20	10-25	
PID		09:27	10-25	
Process	0.0	17:43	10-24	PREVIOUS
PID		06:12	10-24	PAGEDOWN
Override	100.0	17:43	10-23	
PID		09:35	10-22	Page 1

aodhist

**Figure 9: AOD History Information Summary Screen**

---

***Hold Summaries***

When no one is logged on to the NT, the Log Off screen displays up to six objects per NCM, including system ID, current data, and status. The screen refreshes every 20 seconds. You can add objects to this summary with the HOLD command and delete objects with the CLEAR command.

The HOLD and CLEAR commands are available for every object type. When an object is commanded to HOLD, the CLEAR command replaces HOLD on that object's screen.

To display an object on the Hold Summary, select a system, an object, and HOLD. If you try to add more than six HOLD objects to the summary, the NT displays the error message HOLD DATA BASE FULL.

---

**Using the *HELP* Command**

You can display a help screen whenever the **HELP** command appears:

1. Select **HELP**.
2. Select the command.
3. Press **ENTER**. The NT displays a description of that option.
4. Press **CONTINUE** to return to the object screen.

For help on another option, repeat Steps 1-4.

The option is explained below. To exit, select <b>CONTINUE</b> , then press <b>ENTER</b> .	<b>LOG OFF</b>
	<b>HOME</b>
Selecting <b>HOLD</b> allows you to dynamically display this object at a regular interval while you are logged off. An object can be assigned to the <b>HOLD</b> summary only once. Only six objects can be assigned to the <b>HOLD</b> summary. Hold objects are not selectable on the <b>HOLD</b> summary.	<b>CONTINUE</b>

Holdhelp

**Figure 10: HOLD Command Help Screen**

# Override Control

---

This section explains how to enable, disable, and override objects.

---

## ***Disabling/ Enabling Objects***

The DISABLE command locks out reporting, process triggering, and output control for any object type. Usually, you'll use this command when there are problems with the field equipment. Once the field equipment has been repaired, select ENABLE to resume the object's function.

To disable or enable an object, select a system, an object, then ENABLE or DISABLE.

---

## ***Overriding Objects***

You can use OVERRIDE to control the condition of BO, BD, AOS, AOD, AD, LCG, PIDL, CS, and L2 objects. You might use this command, for example, to override faulty or offline hardware objects. With the OVERRIDE command, you can:

- override analog objects to a selected value
- override binary output objects to a selected state
- perform a timed or manual override on a lighting group

The AUTO command releases the OVERRIDE status and returns control of the object to the application feature.



**CAUTION:** If you override an object, make sure you return it to Auto if you want the application feature to resume control.

Refer to *Changing Schedules* for information on scheduling an override.

## Overriding Binary Output Objects

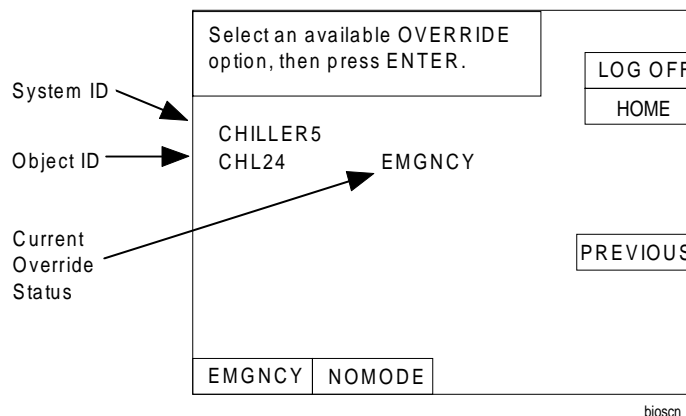
To override a binary output object:

1. Select the system, the object, and the OVERRIDE command.

Note: Binary output objects mapped to locally controlled outputs cannot be overridden.

2. Follow the instructions at the top of the screen.

After you've entered the new OVERRIDE state, the NT displays the current information for that object (including the new state).



**Figure 11: A Typical Binary Object Override Screen**

Refer to *Changing Schedules* for information on scheduling a binary object override.

## Overriding Analog Objects

To override an analog object:

1. Select the system, the object, and the OVERRIDE command.
2. Follow the instructions at the top of the screen.

After you've entered the new OVERRIDE value, the NT displays the current information for that object (including the new value).

The screenshot shows a terminal window for overriding an analog object. At the top, a text box contains instructions: "Enter an OVERRIDE value. Press ENTER after each choice. Select EXECUTE, then ENTER." Below this, the system ID "AHU1" is selected, indicated by a right-pointing arrow. The object ID "CHIR1SYS1" is also selected, indicated by a right-pointing arrow. To the right of the object ID, the current value "143.7 KTon" is displayed. Below the object ID, there is a field labeled "OVERRIDE VALUE" followed by a series of underscores. To the right of the current value, there are two arrows pointing left, labeled "Current Value" and "Your New Entry". On the right side of the screen, there are several buttons: "LOG OFF", "HOME", "PREVIOUS", "ERASE", and "EXECUTE". At the bottom left, there is a numeric keypad with digits 1 through 9, a decimal point, 0, and a plus/minus sign. The text "aoscm" is visible at the bottom right of the screen.

1	2	3
4	5	6
7	8	9
.	0	+ / -

**Figure 12: A Typical Analog Object Override Screen**

Refer to *Changing Schedules* for information on scheduling an analog object override.

---

**Overriding  
Lighting Control  
Groups**

To override a lighting control group:

1. Select the system, the lighting group, and the OVERRIDE command.
2. Select either TIMED or MANUAL.
3. For a TIMED override, enter the new time. For a MANUAL override, select ON or OFF.

Refer to *Changing Schedules* for information on scheduling a lighting group override.



# Commanding Objects

---

This section explains how to command binary, Control System (CS), and Access objects.

With the NT, you can manually change the state of:

- a binary object
- a multistate object within a CS object
- a Card Reader (CR) object
- an Access Control (AC) object

---

## ***Commanding Binary and CS Objects***

When you select COMMAND, new command options become available for the selected object.

For example, when you select a fan, selecting COMMAND displays the fan's current state (OFF, LOW, MEDIUM, HIGH). You can change that state by selecting a new command option.

To command a binary or CS object, select a system, an object, and COMMAND. Select the new command option.

Notes: Setpoint, binary, and multistate attributes within a CS object cannot be commanded using the Network Terminal unless you first specify what attribute is to be commanded. This can be done either in DDL or at the PC using the CS Object Definition or Focus Window.

Binary output objects eligible for local control cannot be commanded.

Enter an OVERRIDE value. Press ENTER after each choice. Select EXECUTE, then ENTER.

System ID → AHU1

Object ID → FAN1\_CRL    LOW   SCHED

Current COMMAND:    OFF

New COMMAND:        \_\_\_\_\_

ON    OFF

LOG OFF

HOME

PREVIOUS

EXECUTE

bocmnd

**Figure 13: Binary Object Command Screen**

Refer to *Changing Schedules* for information on scheduling a command.

---

**Commanding  
Access  
Controller and  
Card Reader  
Objects**

You can use the Network Terminal to control both Access Controller hardware objects and Card Reader software objects.

The Access Controller (AC) object is the hardware object that defines the interface between the D600 Access Controller and the NCM. With the NT, you can :

- Reset -- silence all sounding alarms.
- Access -- command all doors to an open state in an emergency.
- Normal -- command all doors to their normal states according to their commanding feature.

Select an available option, then press ENTER.			LOG OFF
			HOME
NC_4_HDW bldg #1, 3rd floor east * ACCESCON ONLINE IAC600 Access Controller			REFRESH
			PREVIOUS
HELP	*	DISABLE	
RESET	ACCESS	NORMAL	
		HOLD	

FIG14

**Figure 14: Command Screen for the AC Hardware Object**

The Card Reader (CR) object is the software object that represents a Smart Terminal Interface/Card Reader combination in an Access Control system. With the NT, you can:

- Open -- unlock a door in the secure mode, allowing temporary access without the use of an access card. The door remains in the Open state until the defined access time has expired. The door will go into alarm if it is held open longer than the defined shunt time.

- Secure -- lock a door allowing entry with an access card only.
- Access -- open a door allowing access without the use of an access card. The door remains in the Access state until it has been overridden.

Select an available option, then press ENTER.			LOG OFF
EASTZONE East Wing Readers FLR1NE    NORMAL Floor 1 Northeast			HOME
			REFRESH
			PREVIOUS
HELP		DISABLE	
OPEN	SECURE	ACCESS	
		HOLD	

FIG15

**Figure 15: Card Reader Command Screen**

To command an Access Controller:

1. Select the object (AC or CR) and press ENTER. The object's command option screen appears.
2. Select the command, and press ENTER again. The command is executed.

# **Changing Alarm and Warning Limits**

---

This section explains how to change Alarm and Warning Limits.

Alarm and Warning Limits tell the Metasys Network when to alert operators of abnormal conditions in their facilities. When a limit is reached, the Metasys Network sends an alarm or warning message to a predetermined destination (a printer, Operator Workstation, or a named file at an Operator Workstation).

---

## ***Changing Alarm Limits***

To change alarm limits:

1. Select a system and an object. The object's Focus Screen appears.
2. From the next three screens, select LIMITS, ALARMS, and HIGH or LOW. (Be sure to press ENTER after each entry.) After all three selections have been made, press CONTINUE, then ENTER.
3. Follow the screen instructions to complete the operation. The first screen asks you to enter a new high or low alarm limit. Choose a new setting, press ENTER, CONTINUE, then ENTER again.

The second asks for a new differential. Choose a new setting, press ENTER, then EXECUTE, then ENTER again.

A screen appears showing your new settings.

Enter a new HIGH ALARM. Press ENTER after each choice, then select CONTINUE, then ENTER.

System ID → AHU1

Object ID → HWS\_TMP S1 169.5 Deg F

Current HIGH ALARM 200.0 ← Current Value

New HIGH ALARM: : 180. ← Your New Entry

1	2	3
4	5	6
7	8	9
.	0	+/-

LOG OFF  
HOME

PREVIOUS  
ERASE  
CONTINUE

almscrn

**Figure 16: A Typical Alarm Limits Screen**

### **Changing Warning Limits**

1. Select the system and the object. The object's Focus Screen appears.
2. From the next two screens, select LIMITS and WARNING. (Be sure to press ENTER after each entry.) After both selections have been made, press CONTINUE, then ENTER.
3. Follow the screen instructions to complete the operation. The next four screens will ask you to enter the following information:
  - Setpoint
  - Normalband
  - Warning Delay
  - Differential

After the first three entries, press ENTER, then CONTINUE. After entering the differential, press ENTER, then EXECUTE.

A screen will appear showing your new settings.

# Adjusting Objects

---

This section explains how to use the ADJUST command to change the value of an Analog Data object, and how to adjust an Analog Output Setpoint. You will also learn how to use the Network Terminal to adjust the setpoint, binary, and multistate attributes within Control System objects.

Note: AOS objects eligible for local control cannot be adjusted.

The value entered with the ADJUST command stays in effect until a new value is entered.

---

## ***Adjusting AOS, AD, or CS Objects***

To adjust an AOS, AD, PIDL, CS, or L2 object:

1. Select the system and the object.

Note: In order to command an attribute within a CS object, the desired attribute must first be specified using DDL or the CS object Definition window.

2. Select the ADJUST command.
3. If the value is analog, enter the new value. If the object is binary or multistate, select the desired state.
4. Select EXECUTE.
5. Press ENTER.

Enter a new ADJUST value.  
Press ENTER after each choice.  
Select EXECUTE, then ENTER.

LOG OFF

HOME

System ID → CHILLERS

Object ID → CHLR1\_SP

42.0 Deg F

← Current Value

Current ADJUST value: 45.0

← Your New Entry

New ADJUST value: \_\_\_\_\_

1	2	3
4	5	6
7	8	9
.	0	+ / -

PREVIOUS

ERASE

EXECUTE

adjust

**Figure 17: Adjust Screen**

Refer to *Changing Schedules* for information on scheduling an adjust.



# Setting the Clock

---

This section explains how to set the system time and date, adjust daylight saving times, and specify Holiday, Alternate, and Regular periods.

The CLOCK Screen Option allows you to set the time, date, holidays, seasonal time changes, and time periods (used for time scheduling) for the system.

This option is available from the System ID (HOME) screen.

---

## ***Setting the System Date and Time***

To set the system date or time:

1. Select the CLOCK Screen Option.
2. Select DATE or TIME.
3. Enter the new date or time.

---

## ***Daylight Saving Time***

To modify Daylight Saving Time:

1. Select CLOCK, DYLT SVGS, SPRING, and CONTINUE..
2. On the first screen, if the spring date is okay, just press CONTINUE. Otherwise, enter the new spring date and press CONTINUE.
3. On the next screen, enter the new fall date.
4. Select EXECUTE. If you select EXECUTE without changing the fall date, the Metasys Network retains the current fall date.

## ***Deleting Daylight Saving Time***

To delete Daylight Saving Time, select CLOCK, DYLT SVGS, and DELETE. Press ENTER to delete the Daylight Saving Time programs.

---

***Holiday,  
Alternate, and  
Regular Periods***

There are three periods you can specify that are used by the Scheduling function: Regular, Alternate, and Holiday.

You can enter Alternate and Holiday periods. Any dates that are not included in Alternate and Holiday periods are considered Regular for scheduling purposes.

**Adding an  
Alternate or  
Holiday Period**

To define a period that will use the Alternate or Holiday schedule:

1. Select CLOCK, PERIOD, ALTERNATE or HOLIDAY, then ADD.
2. Follow the screen instructions to enter the beginning and ending dates for the period.

**Modifying the  
Holiday Period**

To modify the holiday period:

1. Select CLOCK, PERIOD, and HOLIDAY. This displays the Current Holidays screen.
2. Select a holiday.
3. Follow the message in the Instruction Area to modify the holiday.

**Deleting an  
Alternate or  
Holiday Period**

To delete a period that will use the Alternate or Holiday schedules:

1. Select CLOCK, PERIOD, ALTERNATE or HOLIDAY.
2. Select the period you want to delete.
3. Select DELETE.
4. Press ENTER.

# Changing Schedules

---

This section explains how to add or modify weekly, holiday, and one-time schedules, and how to schedule times to adjust or command an object, or change a setpoint.

Note: Fire Zone and Access objects cannot be scheduled for communications commands at the NT. They can only be Enabled or Disabled manually. (See the *Override Control* section of this manual.)

The SCHEDULE command is available when you select one of the following software object types: ACM, AI, BO, BD, AOS, AD, LCG, PIDL, CS, or L2.

The route you take to access the Scheduling feature depends on the period you are dealing with (Alternate, Regular, or Holiday) and the particular object you want to schedule. For scheduling, objects divide into three sets. The scheduling options available depend on which of the following objects you select:

- ACM, AI, BO, BD, AOS, PIDL, CS, or L2
- AD
- Lighting Control Group

To perform any type of scheduling, you begin by selecting the system, the object (or lighting group), and the SCHEDULE command. Then follow the instructions for the particular object you are scheduling.

---

***Scheduling ACM,  
AI, BO, BD, AOS,  
PIDL, or CS***

You can set up either a weekly or one-time schedule.

**Weekly Schedules**

To set up a weekly schedule, select a system, an object (ACM, AI, BO, BD, AOS, PIDL, CS, or L2), the SCHEDULE command, and the WEEKLY command.

Now you can ADD or MODIFY a weekly schedule to:

- adjust an object (AOS, AD, CS, L2)
- command an object (BO, BD)
- change a setpoint (ACM, AI, PIDL, CS)

***Adding a Weekly Schedule***

To add a weekly schedule:

1. Select a system, an object, the SCHEDULE option, WEEKLY, and ADD, then one of the following commands: CUSTOM, HOLIDAY, EVERY DAY, WEEK DAYS, WEEKENDS, or ALL WEEK.
2. For a CUSTOM schedule, select the days (Sunday, Monday, etc.) for the schedule. For a HOLIDAY, EVERY DAY, WEEK DAYS, WEEKENDS, or ALL WEEK schedule, select a day type (Regular, Alternate, or Both) for the schedule.
3. Enter a new schedule time.
4. Enter the new adjust value (AOS, AD, CS, L2), the new command (BO, BD), or the new setpoint (PIDL, CS, ACM AI), based on the object type.

### ***Modifying a Weekly Schedule***

To modify a weekly schedule:

1. Select a system, an object, the SCHEDULE command, WEEKLY, then MODIFY.
2. If you're modifying a CUSTOM schedule, select the days (Sunday, Monday, etc.) for the schedule.
3. Enter a new schedule time.
4. Enter the new adjust value, the new command, or the new setpoint, based on the object type.

### **One-Time Schedules**

A one-time schedule:

- overrules any other schedule setup
- operates just once, then is deleted
- can only be set up for one day
- must be set up at least one day before it is supposed to operate

To set up a one-time schedule, select a system, an object, the SCHEDULE command, and the ONE-TIME command.

Now you can ADD or MODIFY a one-time schedule to:

- adjust an object (AOS, AD, CS, L2)
- command an object (BO, BD)
- change a setpoint (ACM, AI, PIDL, CS)

### ***Adding a One-Time Schedule***

To add a one-time schedule:

1. Select a system, an object, the SCHEDULE command, ONE-TIME, then ADD.
2. Enter a new schedule date and time.
3. Enter the new adjust value, the new command, or the new setpoint.

### ***Modifying a One-Time Schedule***

To modify a one-time schedule:

1. Select a system, an object, the SCHEDULE command, ONE-TIME, then MODIFY.
2. Enter a new schedule date and time.
3. Enter the new adjust value, the new command, or the new setpoint.

### ***Deleting Schedules***

To delete a schedule, select a system, an object, the SCHEDULE command, WEEKLY or ONE-TIME, then DELETE.

---

## ***Scheduling AD Objects***

Scheduling a change to an AD object is similar to scheduling other objects, with one exception: After you select the system, the object, and the SCHEDULE command, you have to select either **ADJUST** or **WARNING**. You can add only four schedules.

Then, follow the procedure for scheduling other objects, beginning with the selection of the WEEKLY or ONE-TIME commands.

---

### ***Scheduling a Lighting Control Group***

The Scheduling feature offers different commands for Lighting Control Groups than for other objects. The main difference is that alternate weekly schedules and the one-time schedules are not available for lighting control groups. Also, only four schedules per Lighting Control object are allowed.

#### **Adding a Schedule**

1. Select a system, a lighting group, the SCHEDULE command, NORMAL or HOLIDAY (these two options are mutually exclusive), then ADD.
2. Select a new schedule type:  
Type 1--blinks at off time  
Type 2--does not blink at off time  
Type 3--overrides switch ON  
Type 4--overrides switch OFF
3. Select the days of the week for the schedule to be in effect.
4. Enter the ON time.
5. Enter the OFF time.

After you press ENTER, the NT displays the new schedule for the group.

#### **Modifying a Schedule**

1. Select a system, a lighting group, the SCHEDULE option, then NORMAL or HOLIDAY.
2. Select a lighting schedule.
3. Select a new schedule type.
4. Select the days of the week for the schedule to be in effect.
5. Enter the ON time.
6. Enter the OFF time.

After you press ENTER, the NT displays the new schedule for the group.

**Deleting a Lighting  
Control Group  
Schedule**

To delete a schedule, select a system, a lighting group, the SCHEDULE option, NORMAL or HOLIDAY, then DELETE.



# Using the NT Emulator

---

---

## ***Introduction***

The Network Terminal (NT) Emulation software allows the NT to be replaced by a desktop computer (e.g., IBM<sup>®</sup> or Compaq<sup>®</sup>), or a laptop (e.g., Toshiba<sup>™</sup> or Compaq). All operations performed by the NT can also be performed on a PC or laptop with the emulation software. This section will document the differences between the NT and the NT Emulator. For information on the usage and capabilities of the NT, please refer to the previous sections in this manual.

---

## ***Loading Emulation Software***

To load Emulation software:

Note: If you do not have a floppy disk system, skip Step 1.

1. Place the NT Emulator diskette in the floppy disk drive and copy the contents of the disk onto the PC's hard disk.
2. If a mouse is present, install the mouse driver.
3. Install the Hardlock<sup>™</sup> security key by attaching it to one of the parallel printer ports, either LPT1, LPT2, or LPT3.

If you have a printer attached to the parallel port the key will be installed on, the security key must be installed between the printer and the computer, and the printer must be powered on.

The key will in no way affect the function of the printer. If the key is not attached or the printer is not powered on, the NT Emulator software will not allow you to select NT keys displayed on screen.

---

## ***Starting the Emulator***

To start the NT Emulator software, type:

NTEM [port] [baud\_rate] [port\_address]  
[interrupt\_request\_line]. The parameters are optional but, if used, must be entered in the order shown above.

## Port

The *port* entered must be the serial port connected to the NCM either directly or via a modem. (See *Establishing a Connection* later in this section.) The allowable serial ports and their configuration defaults are shown in the table below. If you do not specify a port, the NT Emulation software will communicate via COM2.

Port	Baud Rate	Port Address	IRQ
COM1	9600	3F8	4
COM2	9600	2F8	3
COM3	9600	3E8	4
COM4	9600	2E8	3
HOSTESS1	9600	2E0	3
HOSTESS2	9600	2E8	3
HOSTESS3	9600	2F0	3
HOSTESS4	9600	2F8	3

**Table 6: PC Serial Port Configuration Defaults**

## Baud Rate

The *baud rate* specified must match the baud rate defined for the NT port at the Network Control Module (NCM). Standard value is 9600 baud; however, if you are using a PC with a 8086 processor or a 286 processor running at less than 14 MHz, and you are using a mouse that is interrupt driven, you need to lower the baud rate to 2400 for optimum efficiency. The NT Emulator supports baud rates of 300, 1200, 2400, 4800, and 9600. For instructions on changing the baud rate defined for the NT port, see *Defining Devices* in your *Operator Workstation User's Manual*, and the *Reference* section of your *DDL Programmer's Manual*.

Note: If you do not own these manuals, contact your local Johnson Controls office for help.

**Port Address**

The *port\_address* parameter is used to specify the base address of the serial port in hexadecimal notation. This parameter is not necessary if either ports COM1 or COM2 are being used as the default conforms to the industry standard value.

**Interrupt Request Line**

The *interrupt\_request\_line* parameter defines which Interrupt Request (IRQ) is associated with the serial port being used for the NT Emulator. The NT Emulator software allows the use of IRQ0 through IRQ7. This parameter is not necessary if either ports COM1 or COM2 are being used as the default conforms to the industry standard value.

**Examples*****NTEM***

In the above example, the NT Emulator will attempt to communicate to the NCM via COM2 at 9600 baud using a port address of 2F8H and interrupt request line (IRQ) 3.

***NTEM HOSTESS3 2400***

This example would enable connection of the NT Emulator via the third HOSTESS port at 2400 baud, using a port address of 2F0H and IRQ3.

***NTEM COM3 9600 3E8 3***

This example would enable connection of the NT Emulator via port COM3 at 9600 baud, using a port address of 3E8H and IRQ3.

***NTEM ?***

The above example would display a help screen explaining the command and its parameters.

Once the connection is established, the PC will behave as a Network Terminal with the exceptions listed in this manual.

**Exiting**

To exit from NT Emulation, press the ESC key or click the mouse on the `PRESS ESC TO EXIT` message on your monitor.

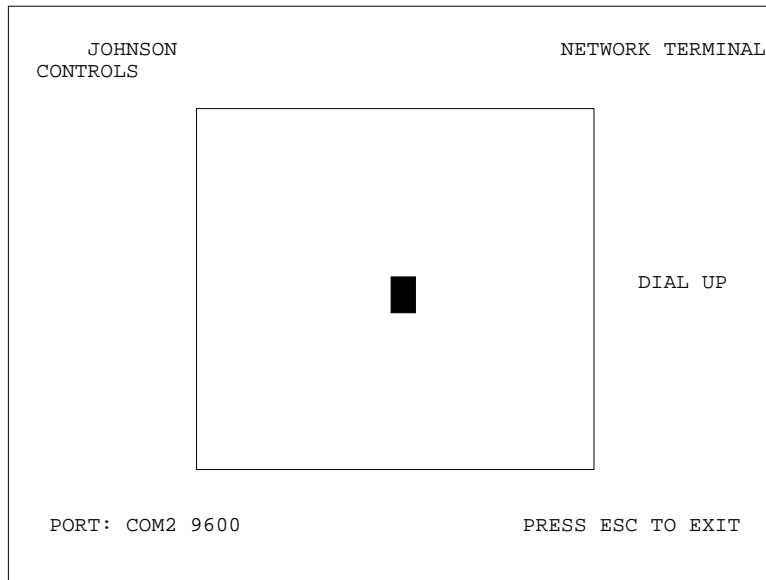
---

## Display Screen

The NT screen is displayed as a window on the PC's monitor. (See example below.) On the bottom left-hand side of the PC's display is a status line indicating the communication port and baud rate entered. A reminder that the ESC key exits the emulation is also displayed. DIAL UP appears in the middle right-hand side to indicate remote connection capability.

If the PC has a mouse installed, the cursor will be in the shape of an arrow.

*If the NT Emulator does not detect the presence of a mouse, a block cursor, as illustrated, will be displayed.*



**Figure 18: PC Display with No Mouse Installed**

## Cursor Control

The NT Emulator provides cursor control through the use of the keyboard function keys described in the table below. The cursor can move around the entire display window.

Key	Function
↑	Moves the cursor up one row
↓	Moves the cursor down one row
→	Moves the cursor right one column
←	Moves the cursor left one column
PAGE UP	Moves the cursor to the top of the NT display window
PAGE DOWN	Moves the cursor to the bottom of the NT display window
HOME	Moves the cursor to the left border of the NT display window
END	Moves the cursor to the right border of the NT display window
TAB	Moves the cursor to the next displayed key
SHFT—TAB	Moves the cursor to the previously displayed key
ENTER	Equivalent to the NT's ENTER key
Left Mouse Button	Equivalent to the NT's ENTER key
Right Mouse Button	Equivalent to the NT's ENTER key
Middle Mouse Button	Equivalent to the TAB key
ESC	Exits the NT Emulation software

**Table 7: Keyboard Keys**

## Using the Mouse

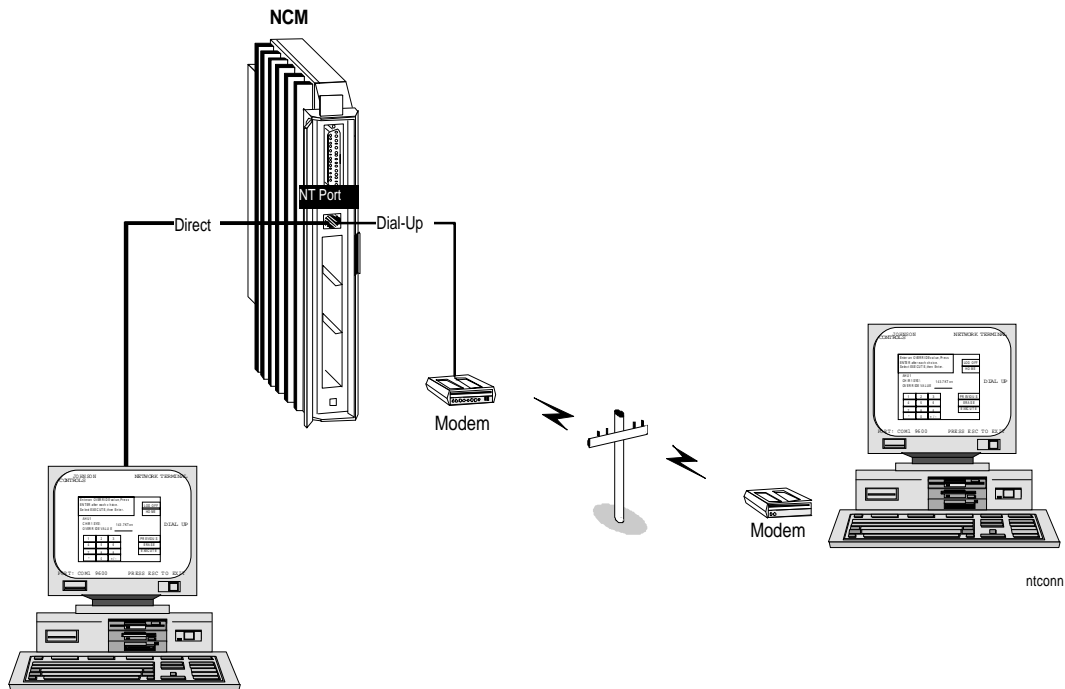
A mouse can also be used to control the placement of the cursor. Simply click the mouse on the area of the screen where you want the cursor to be placed.

To use the mouse to select an option, click the mouse on the option you want to choose.

---

## Establishing a Connection

The NT Emulator may be run on a PC connected directly to an NCM, or remotely via a pair of Hayes® compatible modems.



**Figure 19: NT Emulator Connection**

Note: The above diagram is intended to illustrate both the direct (left) and dial-up (right) connections; however, only one configuration can be chosen for each NCM.

**Direct Connection** To establish a direct connection with Metasys, an NT Emulator cable (included in this package) must be connected between the NCM modular phone jack, labeled NTU, and the PC. The pinouts for the RJ12 connector are shown below.

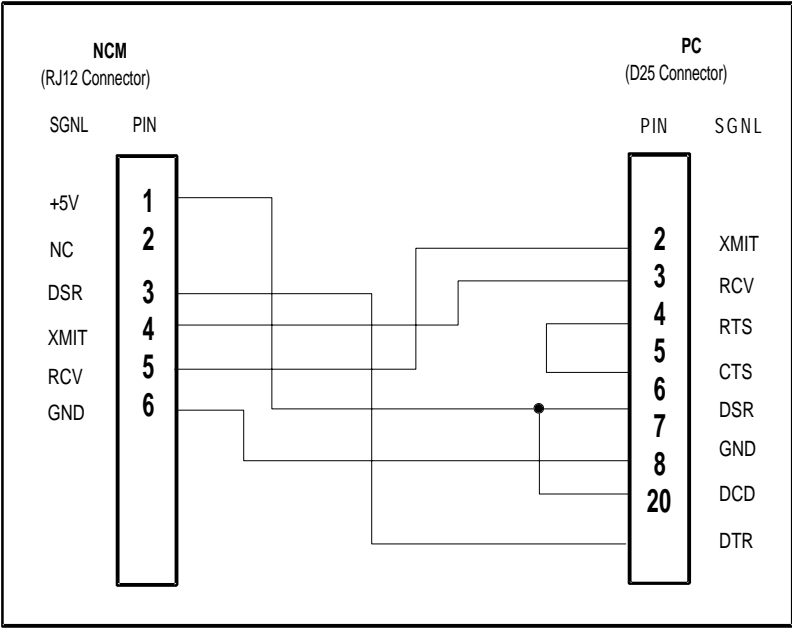
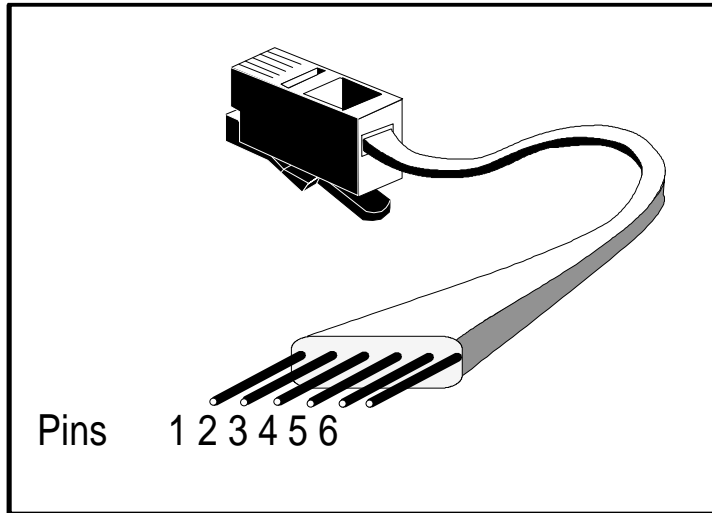


Figure 20: Pinouts for NT Emulator Cable

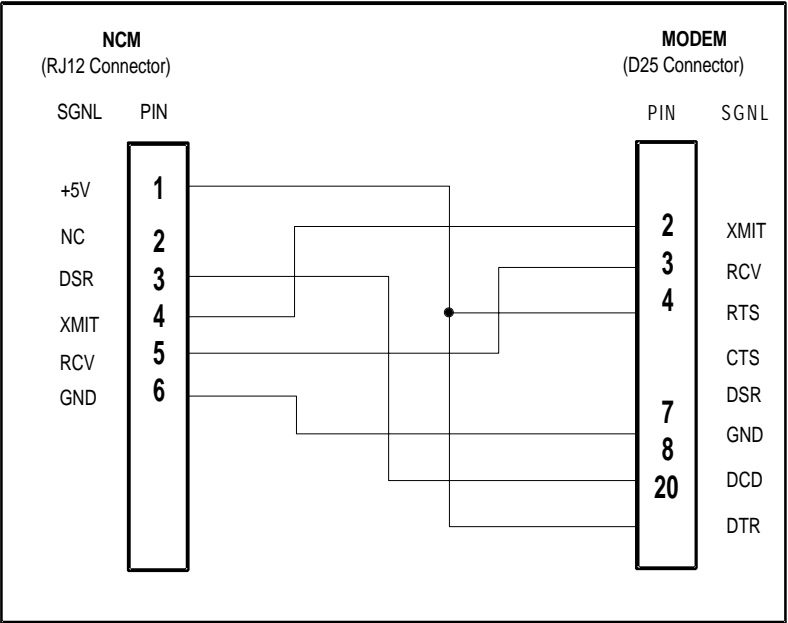


**Figure 21: RJ12 Connector Pinouts**



**Remote  
Connection**

A dial-up connection between the PC and the NCM is possible using an NT Remote cable (included in this package) between the NCM and an external Hayes compatible modem. The modems used must be able to communicate at the baud rate defined for the NTU port on the NCM.



**Figure 22: Pinouts for NT Remote Cable**

These guidelines should be followed when setting up a remote connection between the PC or laptop and an NCM:

- To set up the modem at the NCM, first connect it at the serial port of the PC. At the DOS prompt, issue the command NCMODEM [port]. This will issue the following commands to the modem:
  - *AT&C1* - configures the modem for the Data Carrier Detect signal to track the data carrier from the remote (PC's) modem to the modem connected to the NCM
  - *SO=I* - sets up the modem for Auto-Answer operation
  - *&W* - saves the above two options so that they are automatically recalled upon power-up

Note: These commands are defined in the file NCMODEM1.CFG.

- The PC may use either an internal or external modem. If you use an external modem, connect it to one of the PC's serial ports via a modem cable. Enter the port connected to the modem as the port parameter when starting the NT Emulator software.
- Before the NT Emulator can provide the connection between the two modems, it requires the phone number of the other modem. Place the phone number of the remote modem in the text file **PHONENBR.LST**. Use any standard ASCII text editor to make changes to this file.

You can define up to 100 different phone numbers. Place a question mark (?) between the end of the number and the start of any descriptive text.

### ***Customizing a Remote Setup***

You can customize certain setup parameters for remote application using the configuration file NTEMULAT.CFG. Use any standard text editor to make changes to the file. You can specify:

- modem initialization string (default = ATL0&C1&D1)
- prefix for dialing (default = ATDT)
- hang-up command (default = ATH0)

If you change the phone number file name, you must define a new file with the new phone numbers in it.

```
555-1101 ? 507 E. Michigan (SSD)
555-1102 ? 3713 N. Humboldt (BD)
555-1103 ? 615 E. Michigan (SSD)
555-1104 ? 200 N. Jefferson (SECD)
555-1105 ? 417 E. Chicago (SSD/SECD/JCII)
555-1106 ? 324 E. Wisconsin (SSD/SECD/JCII)
555-1201 ? 3238 N. Bremen St. (BD)
555-1202 ? 4285 N. Port Washington Rd. (IBD)
555-1203 ? 300 E. Keefe Ave. (BD)
555-1204 ? 5400 N. Teutonia Ave. (BD)
555-1205 ? 5757 N. Green Bay Ave. (CORP)
555-1206 ? 1701 W. Civic Dr. (CORP)
```

**Figure 23: Phone Number File**

### ***Establishing the Remote Connection***

To establish a remote connection with an NCM:

1. Move the cursor over DIAL UP, and press ENTER. The display changes to that shown in the illustration on the following page.  

Note: While this display is being shown, direct communication is disabled.
2. Move the cursor over the desired phone number, and press ENTER. The selected number appears in the box below the Dialup Directory title for confirmation.  

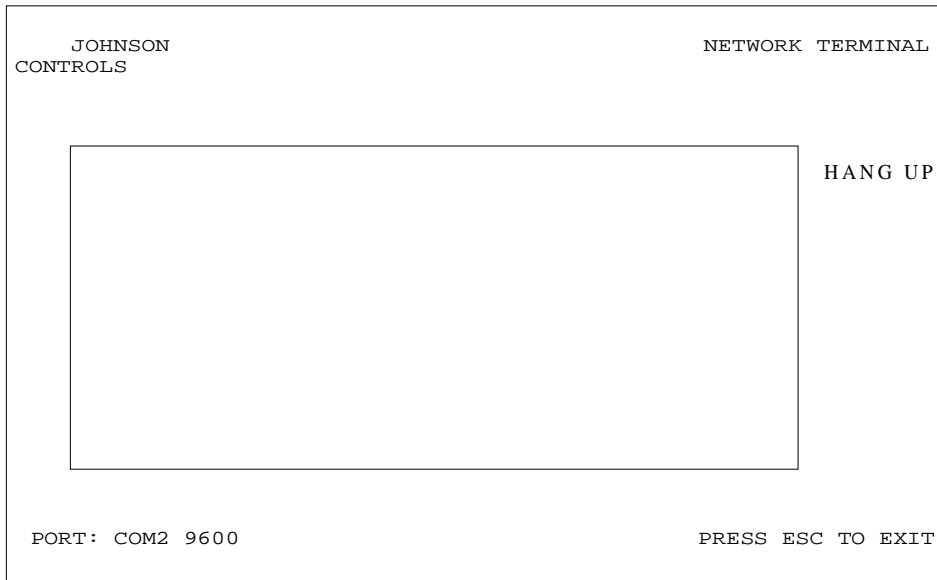
Note: The Dialup Directory will show up to 16 phone numbers at one time. To view more numbers, move the cursor over UP or DOWN, and press ENTER.
3. Move the cursor over OK and press ENTER. The Emulator dials the number.  

Note: To cancel the display, move the cursor over CANCEL, and press ENTER.

JOHNSON CONTROLS		NETWORK TERMINAL	
DIALUP DIRECTORY			
<div></div>			
<div>2-5945 ? JOHN SMITH'S OFFICE 555-1101 ? 507 E. MICHIGAN (JCI) 416-555-5710 ? JOHNSON CONTROLS TORONTO 555-1203 ? 1701 W. CIVIC DRIVE (CORP)</div>			
		DIAL UP	
CANCEL	OK	UP	DOWN
PORT: COM2 9600		PRESS ESC TO EXIT	

**Figure 24: PC Display With Dial-up Connection**

The NT Emulator will attempt connection with the remote modem. Once a connection has been established, the DIAL UP message is replaced with HANG UP. When you are done talking with the remote NCM and want to disconnect, move the cursor over HANG UP and press ENTER. If connection can not be established due to modem errors, attempt to call the number again, or select a different phone number to call.



**Figure 25: PC Display--Terminating a Remote Connection**

## Glossary

---

<b>* (Asterisk)</b>	An NT command option that allows you to see the current condition(s) of an object.
<b>AC</b>	See Access Controller object.
<b>ACM</b>	See Accumulator object.
<b>AD</b>	See Analog Data object.
<b>AI</b>	See Analog Input object.
<b>AOD</b>	See Analog Output Digital object.
<b>AOS</b>	See Analog Output Setpoint Object.
<b>ASC</b>	See Application Specific Controller.
<b>ACCESS</b>	A software command issued to Access Controller or Card Reader objects that unlocks doors, allowing access without an access card. If given to an Access Controller, all doors associated with the Access Controller will open. This command remains in effect until a scheduled application feature overrides it.
<b>Access Controller (AC) object</b>	The hardware object that defines the interface between the D600 Controller and the NCM.
<b>Accumulator (ACM) object</b>	The software representation of a binary input device that measures flow or consumption by monitoring a rate of contact change.

<b>Analog Data (AD) object</b>	An object derived from an analog value that was obtained as the result of a control process, operator entry, or attribute from another object.
<b>ADJUST</b>	An NT command option that allows you to change the value of an object.
<b>adjustment</b>	The procedure required to produce the exact setting, response, or effect desired.
<b>Analog Input (AI) object</b>	The software representation of a hardware device that is monitoring an analog value.
<b>alarm</b>	A signal, either audible or visual or both, that alerts an operator to an off-normal condition that requires corrective action; an off-normal condition (e.g., pressure or temperature) that has deviated from an established operating range.
<b>ALARM</b>	An NT screen option that displays system IDs that have one or more objects in alarm.
<b>alarm limit</b>	Optional high and low limits set by the user. If the analog value goes above the high limit, or below the low limit, an alarm is generated and a COS report is sent to one or more operator devices.
<b>analog limit</b>	The high or low value of an analog input object which, if exceeded, will cause an alarm and/or control action.
<b>Analog Output Digital (AOD) object</b>	The software representation of a control output used in positioning valves, dampers, and other proportional devices.
<b>Analog Output Setpoint (AOS) object</b>	The software representation on an analog output device used in position control, or remote setpoint adjustment.



<b>Application Specific Controller (ASC)</b>	A family of control devices with hardware and software preconfigured to meet the functional needs of a specific application. These devices can either operate as standalone devices, or as part of the Metasys Network. Types of ASCs include the AHU, VAV, UNT, and LCP.
<b>attribute</b>	A characteristic or property of an object (e.g., a low limit of an analog object) that is available to the user.
<b>AUTO</b>	Abbreviation for automatic mode of operation. An NT command option that releases the override status and returns control of the object to the application feature.
<b>BD</b>	See Binary Data object.
<b>BI</b>	Binary Input object.
<b>BO</b>	Binary Output object.
<b>bandwidth</b>	For electronic controllers, the change in the controlled variable that causes a full change in controller output.
<b>binary</b>	A characteristic or property involving a selection, wave, or state, as either a binary zero or a one.
<b>Binary Data (BD) object</b>	An object derived from a binary value that was obtained as the result of a control process, operator entry, or attribute from another object.
<b>COS</b>	See Change-of-State.
<b>Card Reader</b>	A device that translates information on an Access Card and sends it, via a Smart Terminal Interface (STI), to the D600 Controller data base for verification.

<b>Card Reader (CR) object</b>	A software object that represents one Smart Terminal Interface/Card Reader combination in an IAC-600 Access Control System.
<b>Change-of-State (COS)</b>	For an object, the act of transforming from one condition to another in realtime (e.g., a binary input object changing from Normal to Alarm).
<b>CLEAR</b>	An NT command option that removes the object from the HOLD summary.
<b>CLOCK</b>	An NT screen option that accesses the system clock to set the time, date, or holidays.
<b>COMMAND</b>	An NT command option that allows you to manually change the state of an object.
<b>CONTINUE</b>	An NT screen option that proceeds to the next screen.
<b>Control System (CS) object</b>	Represents a control system as a software object. The CS object attributes are selected analog, binary, and multistate points in the controller. Used for AHU, UNT, VAV, and LCP controllers only.
<b>current analog value</b>	Current reading from a hardware sensor. Analog values can be displayed in positive or negative values, with one digit to the right of the decimal point.
<b>D600 Controller</b>	An intelligent access controller that can manage up to sixteen card readers within a facility.
<b>data point</b>	Software that corresponds to and characterizes a specific value that is not associated with an actual field device (e.g., the result of an equation).
<b>deadband</b>	See normalband.

<b>DELETE</b>	An NT screen option that removes scheduled programs from the system.
<b>differential</b>	The value that prevents excessive alarm and warning reports that result from fluctuations above and below the limits. When an analog input object crosses over a limit, causing the object to go into either alarm or warning status, the object must cross over a differential before reporting status is returned to normal. There is only one differential value. It is the same for high alarm, low alarm, high warning, and low warning.
<b>DISABLE</b>	An NT command option that stops an object from triggering control processes, sending COS messages to operator devices, and accepting commands (except for ENABLE command).
<b>ENABLE</b>	An NT command option that resets the DISABLE command and allows the object to trigger control processes, send COS reports to operator devices, and accept other commands.
<b>ENTER</b>	The area on the NT Touchpad that corresponds to the Instruction Area on the display screen. Pressing ENTER tells the system an entry is complete.
<b>ERASE</b>	The NT screen option that deletes the last entered character.
<b>expanded ID</b>	A descriptor that further identifies the system/object set.
<b>EXECUTE</b>	An NT screen option that, when followed by ENTER, allows data to be written to the NCM.
<b>FMS</b>	See Facility Management System.
<b>Facility Management System</b>	A combined network system of Operator Workstations, Network Control Units, Network Expansion Units, Application Specific Controllers, Network Terminals, and points used to control or monitor a building or group of buildings.

<b>field device</b>	Physical sensors, actuators, relays, transducers, or other devices used to measure or directly control building equipment and processes.
<b>Fire Controller object</b>	A hardware object that defines the interface between a designated NC and the IFC-2020 Fire Alarm Controller.
<b>HELP</b>	An NT command option that displays a help screen once HELP and an option are selected.
<b>high warning limit</b>	High warning limit is calculated by the system based on the setpoint and normalband you enter. If you change the setpoint or normalband, the high warning limit will automatically change accordingly. The high warning limit must be less than the high alarm limit minus the differential. If the analog value exceeds the high warning limit, the object goes into high warning status and a COS report is sent to operator devices.
<b>HISTORY</b>	An NT command option that shows what has happened to an object over a period of time. Samples (values at the times reported) are shown for analog objects. Status changes are shown for binary objects.
<b>HOLD</b>	An NT command option that dynamically displays an object at a regular interval while you are logged off. An object can be assigned to the HOLD summary only once. Only six objects at a time can be assigned to the HOLD summary.
<b>HOME</b>	An NT screen option that halts the current procedure and redisplay the System ID screen.
<b>IAC-600 Access Control System</b>	A control system that manages security (access) functions within your facility.
<b>ILC</b>	See Intelligent Lighting Controller.

<b>Intelligent Lighting Controller (ILC)</b>	An application specific controller used typically to control lighting via on/off switching at the building's lighting panels.
<b>L2 object</b>	The software representation of a C210A, C260A, C260X, or C500X controller.
<b>LCG</b>	Lighting Control Group
<b>light scheduling</b>	Time-programmed control of lighting
<b>LIMITS</b>	An NT command option that allows you to see, modify, or add alarm or warning limits.
<b>LOG OFF</b>	The NT screen option that exits the system and clears the screen.
<b>LOG ON</b>	The NT screen option that displays the Password Entry screen.
<b>manual override</b>	Manual function command that takes precedence over application-related and time-programmed control of an object.
<b>Multistate object</b>	An attribute within the CS object of LCPs. The attribute can be set to five different states using Boolean-like commands.
<b>Network Terminal (NT)</b>	A portable operator's device used to access object data, change operating parameters and schedules, and perform overrides at the NCU.
<b>Network Terminal Emulator</b>	An IBM PC, XT, AT or PS/2 computer, or a Toshiba laptop loaded with NT Emulation software. The NT Emulator can perform the same functions as the Network Terminal.
<b>NORMAL</b>	A command for the Access Controller that sends all doors on the network to their appropriate conditions according to the time, date, and application feature.

<b>normalband</b>	<p>Defines the normal range for the value of an analog input object. It is optional and user-defined. The normalband is used to calculate the high and low warning limits:</p> <ul style="list-style-type: none"> <li>● high warning limits = setpoint + 1/2 of normalband</li> <li>● low warning limit = setpoint - 1/2 of normalband</li> </ul> <p>If a normalband and setpoint are entered, high and low warning limits are set automatically.</p>
<b>object</b>	A software data base record that corresponds to and characterizes a field device, a data object, an N2 node, or a control function.
<b>OPEN</b>	A software command issued to the Card Reader object that opens a door, allowing access without an access card until the defined alarm shunt time has elapsed.
<b>OVERRIDE</b>	The NT screen option, available on the System ID screen, that displays an Override Summary of System IDs that have objects being overridden. The NT command options that allows you to control the condition of an object until the AUTO option is selected. Only fire commands can control an object in override status. Analog objects can be overridden to a selected value. Binary objects can be overridden to a selected state.
<b>PAGEDOWN</b>	An NT screen option that displays the next full screen of data.
<b>PAGEUP</b>	An NT screen option that displays the previous screen full of data.
<b>Password</b>	A global feature that restricts access to system objects and commands for each operation.

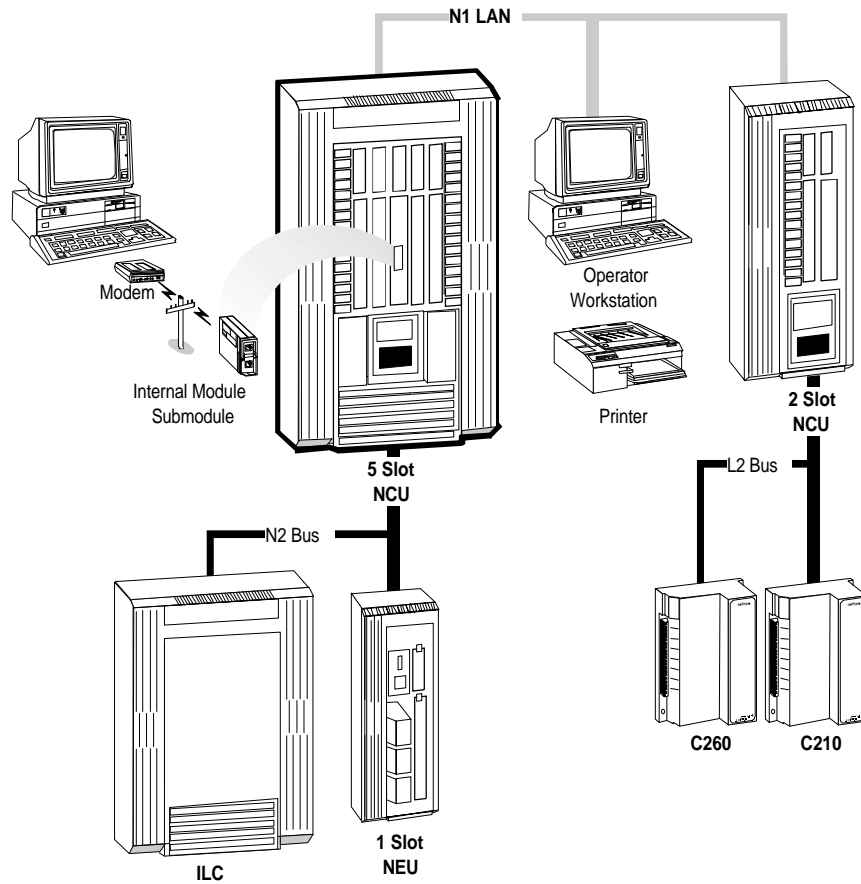
<b>PREVIOUS</b>	An NT screen option that automatically shows the previous layer of penetration.
<b>REFRESH</b>	An NT screen option that refreshes the screen with any dynamic data.
<b>report lockout</b>	Prevents reporting of COS objects to assigned I/O devices.
<b>RESET</b>	A hardware command given to the Access Controller object that resets any alarms and silences any alarm horns that may be sounding due to alarm conditions.
<b>SCHEDULE</b>	An NT command option that allows you to see, modify, or build schedules for an object.
<b>sample</b>	Current analog value that ID displayed on the History Summary.
<b>SECURE</b>	A software command given to the Card Reader object that closes a door, allowing entry only with a valid access card. The command remains in effect until it is manually overridden, or overridden by a schedule application feature.
<b>Setpoint</b>	The point at which the desired value of the control variable is set. A setpoint can be defined for AI or AOS objects. AI controls only warning limits. AOS controls both the warning limits and current value (desired value of the control variable).
<b>Shunt Time</b>	The amount of time a access controlled door can be held open before an alarm is issued.
<b>UNLATCH</b>	An NT command option that releases the LATCHED status of an object. Returns the status to normal only if the alarm condition has cleared.

<b>warning</b>	Notification that an analog input object is outside normal range, but not yet in alarm. Normal range is determined by the setpoint and normalband.
<b>Zone object</b>	A software object that tracks the status of a fire zone programmed into the Fire Alarm Controller. It reports status changes throughout Metasys as required.



## Metasys Overview

The figure below summarizes the Metasys hardware architecture. Refer to the *Metasys Network Technical Manual* for additional details.



**Figure 26: Metasys Hardware Architecture**



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